

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A substrate processing apparatus, comprising:

a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition;

a first process chamber which is connected to the transfer chamber via a gate valve and in which a first process disposes a substrate;

a second process chamber which is connected to the transfer chamber and disposed in the vicinity of the first process chamber, and in which a second process disposes the substrate that has finished the first process;

a transfer mechanism which is connected movably to the transfer path and which is configured to transfer the substrate and carry the substrate into and out of said first process chamber and said second process chamber;

a detecting mechanism which is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof and
which is configured to detect a relative position between the substrate to be conveyed ~~carried into said at least one second process chamber~~ by said transfer mechanism and the table ~~second process chamber~~; and

a correcting mechanism configured to correct displacement of the relative position based on a result of the detection by said detecting mechanism with said transfer mechanism.

2. (Original) A substrate processing apparatus as set forth in claim 1, wherein said transfer mechanism has a holding portion configured to hold the substrate, and

wherein said detecting mechanism detects an absolute position of the holding portion to the second process chamber.

3. (Original) A substrate processing apparatus as set forth in claim 2, further comprising:

a storage unit configured to store a coordinate system for representing the absolute position of the holding portion and predetermined coordinates representing a proper position of the holding portion in the coordinate system,

wherein said correcting mechanism compares coordinates in the coordinate system of the substrate detected by said detecting mechanism and the predetermined coordinates to correct displacement between the both coordinates, thereby correcting the displacement of the relative position.

4. (Currently Amended) A substrate processing apparatus as set forth in claim 1,

wherein said detecting mechanism has at least two photosensors provided on ~~[[a]]~~the carry-in route of the substrate by said transfer mechanism, and

wherein an interval between the two photosensors is smaller than a diameter of the substrate.

5. (Original) A substrate processing apparatus as set forth in claim 4, wherein the carry-in route of the substrate by said transfer mechanism extends linearly, and

wherein the two photosensors are arranged in a direction substantially orthogonal to the carry-in route.

6. (Original) A substrate processing apparatus as set forth in claim 1, wherein said detecting mechanism has a transmission-type photosensor.

7. (Currently Amended) A substrate processing method of a substrate processing apparatus including: a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition; a first process chamber which is connected to the transfer chamber via a gate valve and in which a first process disposes a substrate; a second process chamber which is connected to the transfer chamber and disposed in the vicinity of the first process chamber, and in which a second process disposes the substrate that has finished the first process; and a transfer mechanism which is connected movably to the transfer path and which is configured to transfer the substrate and carry the substrate into and out of said first process chamber and said second process chamber; said method including:

(a) applying the first process on the substrate in the first process chamber;

- (b) carrying the substrate out of the first process chamber by the transfer mechanism after said step (a);
- (c) carrying the substrate, which is carried out of the first process chamber, into the second process chamber by the transfer mechanism;
- (d) detecting a relative position between the substrate to be conveyed to a table in the second process chamber via a gate valve thereof ~~carried into the second process chamber~~ by the transfer mechanism in said step (c) and the table ~~second process chamber~~; and
- (e) correcting displacement of the relative position based on a result of the detection of said step (d) with said transfer mechanism.

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (New) A substrate processing apparatus, comprising:

a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition;

a plurality of first process chambers which are connected to the transfer chamber via gate valves and disposed at both sides of the transfer chamber so as to be opposite to one another via the transfer chamber, and in which a first process disposes a substrate;

a plurality of second process chambers which are connected to the transfer chamber via other gate valves and disposed at both sides of the transfer chamber so as to be opposite to one another via the transfer chamber in the vicinity of the first process chamber, and in which a second process disposes the substrate that has finished the first process;

a transfer mechanism which is connected to the transfer path under a linear movable condition and includes two substrate supporters and which is configured to transfer the substrate and carry the substrate into and out of the first process chambers which are provided opposite to one another via the transfer chamber and/or the second process chambers which are provided opposite to one another via the transfer chamber in synchronization;

a detecting mechanism which is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof and which is configured to detect a relative position between the substrate to be conveyed by said transfer mechanism and the table; and

a correcting mechanism configured to correct displacement of the relative position based on a result of the detection by said detecting mechanism with said transfer mechanism.

13. (New) A substrate processing apparatus as set forth in claim 12,

wherein said transfer mechanism has a holding portion configured to hold the substrate, and

wherein said detecting mechanism detects an absolute position of the holding portion to the second process chamber.

14. (New) A substrate processing apparatus as set forth in claim 13,
further comprising:

a storage unit configured to store a coordinate system for representing the absolute position of the holding portion and predetermined coordinates representing a proper position of the holding portion in the coordinate system,

wherein said correcting mechanism compares coordinates in the coordinate system of the substrate detected by said detecting mechanism and the predetermined coordinates to correct displacement between the both coordinates, thereby correcting the displacement of the relative position.

15. (New) A substrate processing apparatus as set forth in claim 12,

wherein said detecting mechanism has at least two photosensors provided on the carry-in route of the substrate by said transfer mechanism, and

wherein an interval between the two photosensors is smaller than a diameter of the substrate.

16. (New) A substrate processing apparatus as set forth in claim 12,

wherein the carry-in route of the substrate by said transfer mechanism extends linearly, and

wherein the two photosensors are arranged in a direction substantially orthogonal to the carry-in route.

17. (New) A substrate processing apparatus set forth in claim 12,
wherein said detecting mechanism has a transmission-type photosensor.